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VOLUME XVII. NUMBER 6

THE AGRICULTURAL STUDENT

A MONTHLY MAGAZINE DEVOTED TO AGRICULTURAL EDUCATION

FEBRUARY, 1911
(*Corn Number*)

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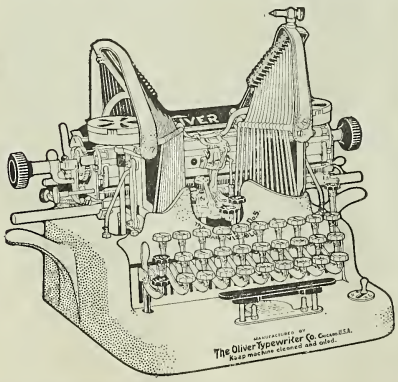

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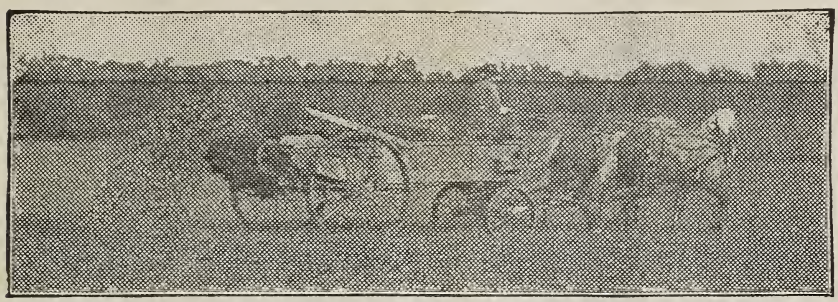

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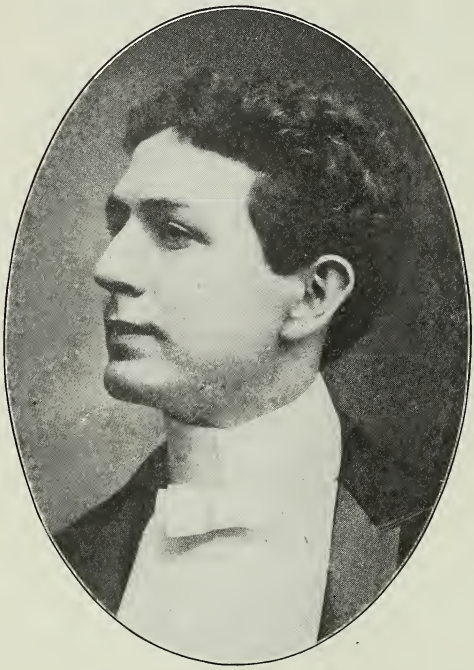

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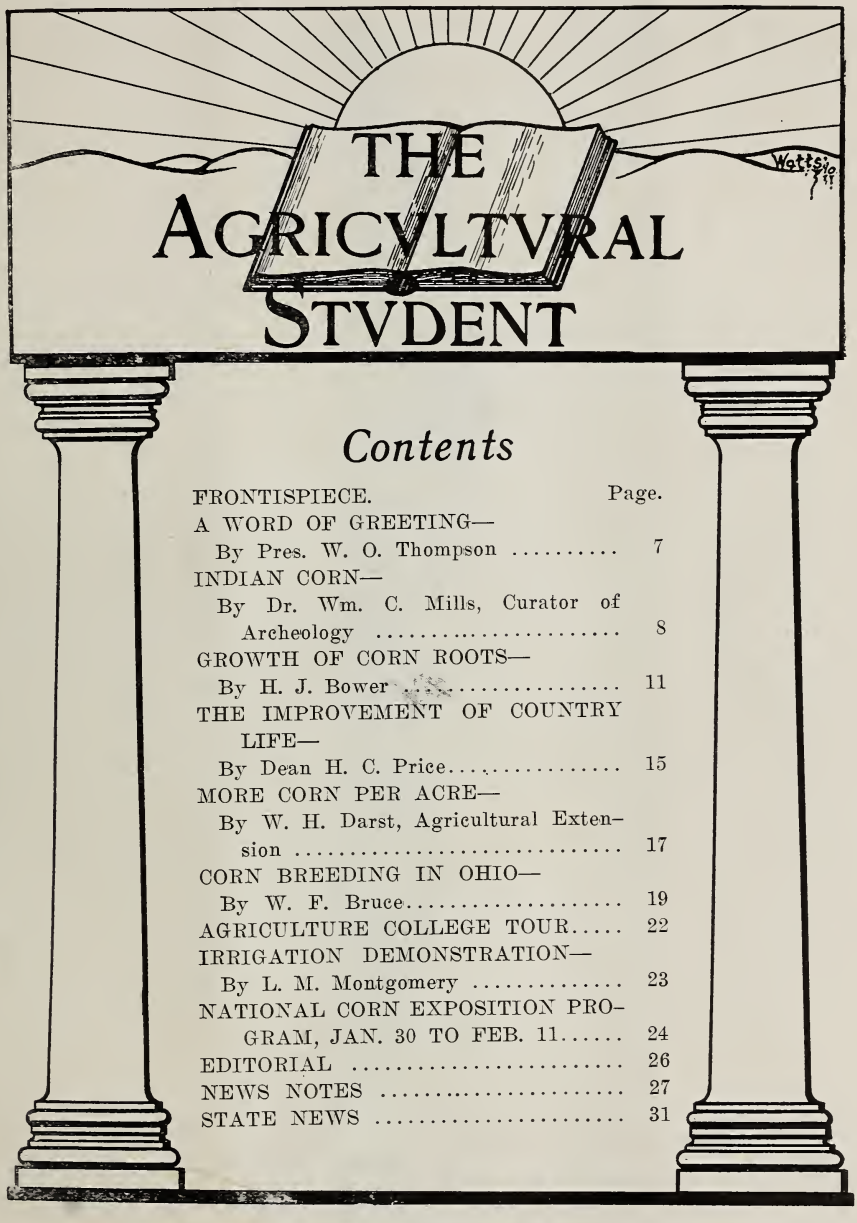

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The Pfeifer Show Print Co., Columbus, O.

Ohio State Fair Buildings, Where National Corn Exposition is Being Held.

THE
AGRICULTURAL STUDENT

Vol. XVII. OHIO STATE UNIVERSITY, COLUMBUS, FEBRUARY, 1911 Number 6

A Word of Greeting

By President W. O. Thompson

It was a happy thought on the part of the management of the "Agricultural Student" when they decided to make the February edition a special Corn Exposition number. The University, especially the College of Agriculture, is interested in the Exposition, but quite as much interested in the stimulus that such an exhibit shall bring to the corn growers and agricultural people of Ohio. For a series of years the College of Agriculture has been co-operating with the Experiment Station at Wooster and several local organizations throughout the State in the devopment of better conditions, improved methods, and increased profits in corn growing. The Faculty and students of the College therefore appreciate very keenly the importance of the Corn Exposition, and express the hope that many of the men attending the Exposition and competing in its exhibits will find opportunity and time to visit the University campus, where a most cordial welcome awaits them. Every convenience that can be offered for the accommodation of persons interested in the Exposition will be most freely provided.

The hope is also expressed that the readers of "The Student" will find time to visit the Exposition. These exhibits over the country have passed from the primitive form of a mere contest in corn production, to a great popular movement designed to arouse the people to the fundamental importance of corn as one of the great staple products of the land. There is a considerable area of good corn land which has been permitted to suffer depreciation by reason of poor culture and careless methods. The recent results reached in corn production by small boys in the South has awakened a great many people in the North as to the value of intelligent and careful culture. There is no prospect that there will be such an immediate revival of methods as to suddenly produce an enormous corn yield. The most that can be hoped for is that by arousing interest in the subject we may promptly stop the methods now practiced, and initiate such improvement in corn production as will meet the demand of the country. The price of corn is now where it can be profitably produced and there is little danger that the yield will increase more rapidly than the demand. Even a moderate improvement in conditions will require intelligence as to problems, persistence in effort to solve them, and co-operation on the part of all interested in agricultural conditions. The Exposition may serve to awaken new interest and open the way for better conditions. In this good work the help of all farmers and agricultural agencies is solicited.

Indian Corn

By Dr. W. M. C. Mills, Curator of Archaeology

One of the most interesting exhibits at the great Corn Show is the exhibit of Prehistoric corn, and the implements used in its cultivation, made by the Ohio State Archaeological and Historical Society.

The corn was secured during the explorations of the Baum Village Site located along Paint Creek in Ross County, Ohio. This village was occupied by a tribe of Indians who had at no time during their stay come in touch with Europeans.

The origin of Indian Corn (Zea mays) seems to be in the intertropical part of our continent, and a great civilization based upon agriculture extends both north and south of this region.

The aboriginal form of Indian Corn has not as yet been discovered in its wild state, and no doubt after many, many centuries of cultivation and improvement by prehistorical man, the aboriginal form has long since disappeared.

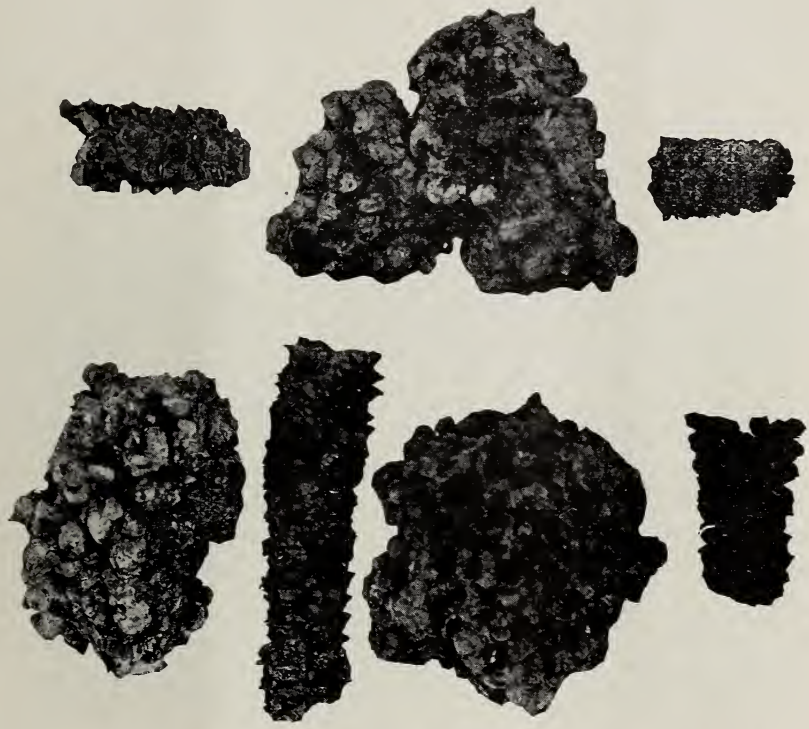
Subterranean Storehouses in Which Indian Corn was Stored.

The cultivation of corn must have been extremely ancient. The early travelers in Peru describes several kinds of corn taken from the old Peruvian tombs prior to the dynasty of the Incas, which is not known in Peru. Darwin during his observations in South America discovered Indian Corn together

with a number of species of sea-shells embedded in a beach which had been upraised at least 85 feet above the level of the sea. At the time of discorery of the New World it was grown from New England to Chili and was the most conspicuous of vegetable products in aboriginal life, while the supply was, of course, a constant varying quantity on account of the multiformity of physical conditions.

Fiske says, "It could be planted without clearing or ploughing the soil. It was only necessary to girdle the trees with a stone hatchet, so as to destroy their leaves and let in the sunshine. A few scratches and digs were made in the ground with a stone digger, and the seed once dropped in took care of itself. The ears would hang for weeks after ripening and could be picked off without meddling with the stalk. There was no need of threshing or winnowing."

Bancroft writes, "The maize springs luxuriantly from a warm new field, and, in the rich soil with little aid from culture, outstrips the weeds; bears, not thirty, not fifty, but a thousand fold; if once dry, is hurt neither by heat nor cold; may be preserved in a pit or a cave for years, aye for centuries; is gathered from the field by hand, without knife or reaping hook, and becomes nutritious food by a simple roasting before a fire. A little of its parched meal, with water from the brook, was often a dinner and supper; and the warrior with a small supply of it in a basket at his back. or in a leather girdle, and with his bow and arrows, is ready for travel at a moments warning."



Charred Indian Corn and Cob Taken from Subterranean Storehouses.

When Coronado passed through the Pueblo country, he found that corn was the great staple food and furnished the Indian with more than 90 per cent. of his subsistence.

The Ohio State Archaeological and Historical Society found by their explorations that while primitive man in Ohio depended upon the chase for a certain part of their food supply, the greater part came from their agriculture, as evidenced by the numerous subterranean storehouses used for the storing of corn, being placed in close proximity to the tepee site. The storehouses were made by digging a hole in the ground, varying in diameter from four feet to three feet in depth from seven feet to four feet, in the form of a modern cistern, having a small opening at the top and gradually enlarging to near the bottom. The storehouse was lined with dried grass or bark and the ears of corn, devoid of the husk, was laid in regular order until the crop was properly cared for. After the corn had been used, the storehouses were frequently used for storing shelled corn, beans and dried fruits, as several were found showing the charred remains of shelled corn and other foods that had been placed in a container made of a woven fabric. All the corn found and taken from the storehouses was in a charred state. Caused, no doubt, by fire dropping into the storehouse and practically consuming the stores before being discovered. No doubt the burning of such a nutritious food product was a great loss to primitive man and caused him many hardships, but it has left a record of their industry which never could have been ascertained in any other way.

From the Baum Village Site two varieties of corn was found; an eight rowed variety and a ten rowed variety, both well formed grains. The cob of the eight rowed variety was about one-half inch in diameter and short, while the cob of the ten rowed variety was larger in diameter and longer in proportion.

Along with the corn is shown the agricultural implements made from the large and strong mussel shells. These implements were found in great numbers and in every part of the village.

When we think of primitive man, we must remember he faced an unknown world and his quest for food must have been never ending; he no doubt searched the animal and the vegetable kingdoms, and his beginnings in the progress of civilizaton was slow, obscure and certainly limited. There must have been a long period of time between the custom of gathering wild fruits and grain and that of the regular cultivation of the plants which produce them, but primitive man in America learned to subdue nature and by so doing has given to the people of the world corn, the greatest of food products.

Growth of Corn Roots

By H. J. Bower

When the corn kernel is placed in the soil, moisture enters through the hull and by the control of proper temperature, apparently dormant processes spring into life. Root growth appears first by starting a sharp pointed root (the hypocotyl) downward into the soil in search of water and plant food. Small root hairs are present upon almost the entire length of the hypocotyl. During the growth of the hypocotyl, other roots, known as seed roots, are given off near its base, at the seed grain. This set of roots is all-important in getting the plant started, but perhaps amounts to comparatively little in the after growth. After the exhaustion of the reserved supply of food, the seed roots feed the plant until the lateral or feeding roots are formed.

A sprout (the plumule) pushes upward until it is well above the ground, when it opens and unfolds its leaves, forming at the same time a set of roots at its base, which may or may not be at the seed grain, depending upon the depth of planting. This set of roots forms the first ring of lateral or feeding roots of the corn plant. The first ring of lateral roots are well started when the plant is about six inches high. Then as the diameter of the plant increases another set is formed above the first set of surface laterals. The final appearance of the brace roots is only a continuation of this process. At the time the brace roots appear the corn plants in the field have formed a dense network of roots beneath and between the hills, until a space is fully occupied to a depth of about three feet.

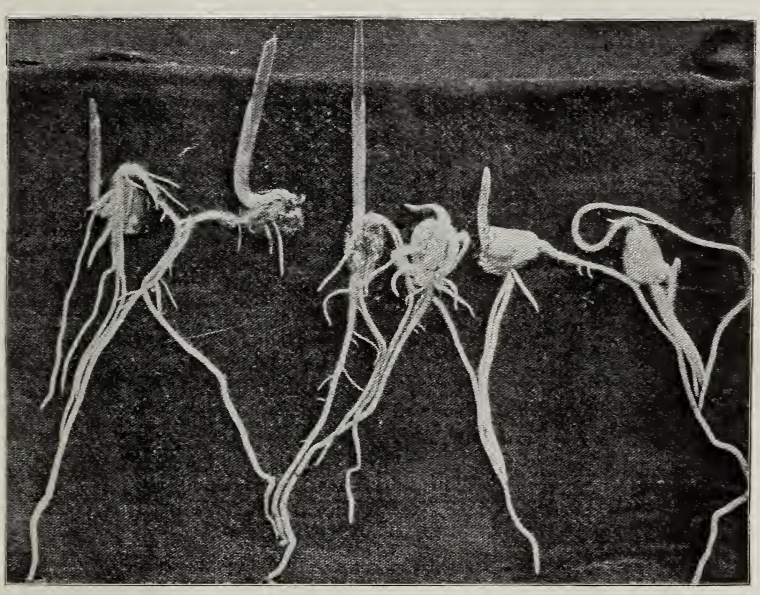
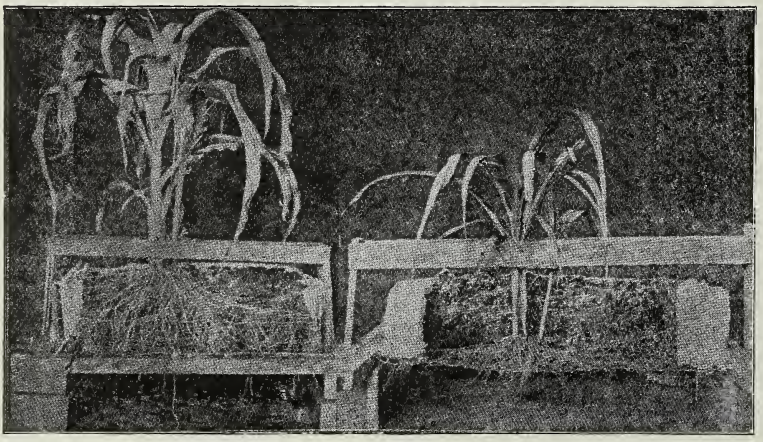


Fig. 1. Young Corn Plants Twelve Days After Planting.

Roots grow from the base of the corn stalk in quite uniform whorls. Near the surface of the ground, the whole

base forms a root crown, from eight to twelve inches in diameter. The root crown is a central trunk by which the innumerable main and lateral roots connect their branches. The main or primary roots are vertical roots, that curve out from the crown, and grow almost directly downward into the subsoil. The lateral or secondary roots, curve downward somewhat as they leave the crown, but they soon extend in an almost horizontal plane, until they meet the roots from the opposite hills and interlace. At the point of interlacing the lateral roots curve more or less abruptly downward extending the depth of the root system. The bulk of the lateral roots lie within three to twelve inches of the surface.

In the horizontal course of the lateral roots they give off many vertical branches that penetrate the subsoil and reach a depth almost equal to that of the overtied roots. Many fibrous roots, covered with root hairs, are given off from the lateral root growth, extending upward, downward and to the sides. Numerous branches are also given off from the overtied roots. These branches produce small fibres and root hairs so that



Planted 2½ Inches Deep. Planted in Lister Furrows 8 Inches Deep.

Fig. 2. Forty-eight Days After Planting.

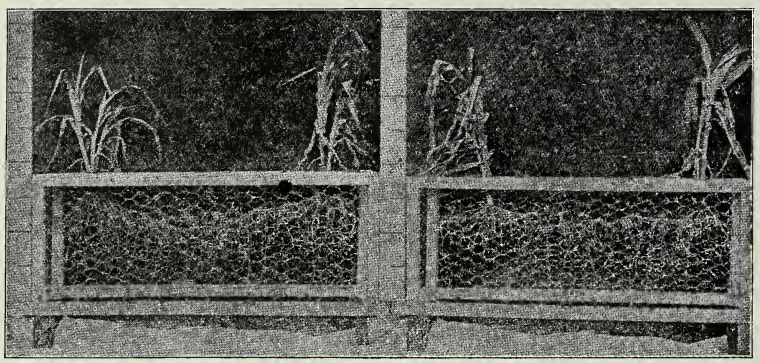


Fig. 3. Forty-seven Days After Planting, Showing Growth of Roots Between Hills.

the whole soil to the depth of the root system serves as a feeding ground for the plant.

Placing a grain of corn deep in the earth with several inches of soil over it, does not insure a deeprooted plant. The formation of the lateral roots always start near the surface, regardless of the depth of the covering, if they start at all. In order to have a deep root system the ground immediately around the young plant must be somewhat lower than the general surface of the field. The surface can be brought to a common level gradually, as the developement of the root system progresses; in other words by trench planting, or listing.

The lister is a plow that consists of a double share and mold board, or a right and left-hand plow so joined together as to turn the soil both ways from a common center. Attached to the plow is a small sub-soiler, which loosens the soil in the bottom of the furrow. This method of growing corn is practiced in the Central West.

The illustration and description of corn root samples are taken from Kansas Bulletin No. 147. The conditions in this state are favorable for growing corn by the method of listing. The cuts present a study of corn roots in different stages of growth, as well as a comparison of the surface planted to the listed planted corn.

Descriptions of Root Samples.

These illustrations are photo-engravings of actual samples. The samples shown in Fig. 2 present a study of root developement secured from planting corn near the surface and in deep listed furrows. The frames and netting were placed in the ground and covered with soil and the corn planted; later the frames were dug up and the dirt washed out, showing the developement of the roots as shown in the figure.

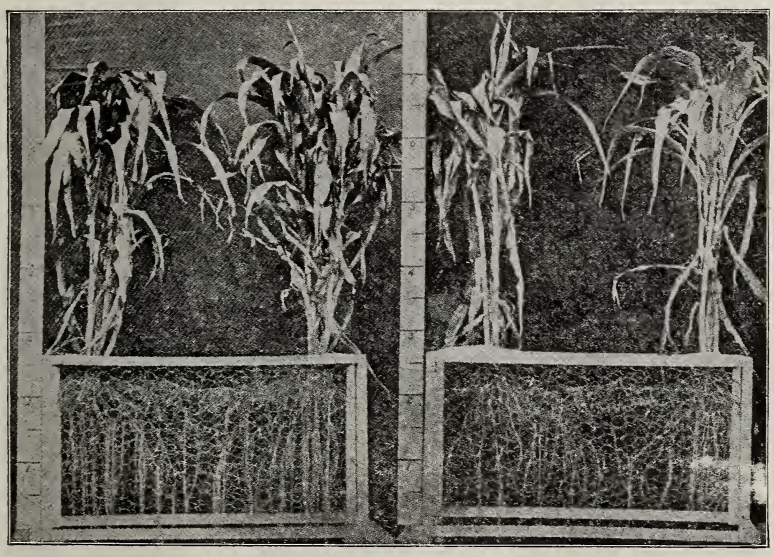


Fig. 4. Sixty-five Days After Planting.

Fig. 3 and Fig. 4 and 5 are samples taken from the field and show the growth and distribution of corn roots between two hills of corn on adjacent rows. In each figure the listed corn is compared with the surface planted

corn, the samples being taken at about the same date, from adjacent plots in the same field. The sample on the right hand side in each figure is the listed corn while the sample on the left hand side is the surface planted corn. It may be clearly seen from these figures that the root system of the listed corn lies somewhat deeper in the soil than the root system of the surface planted corn. The root crowns being further below the surface allow for deeper and closer cultivation of the listed corn, than of the surface planted corn, without injury to the roots.

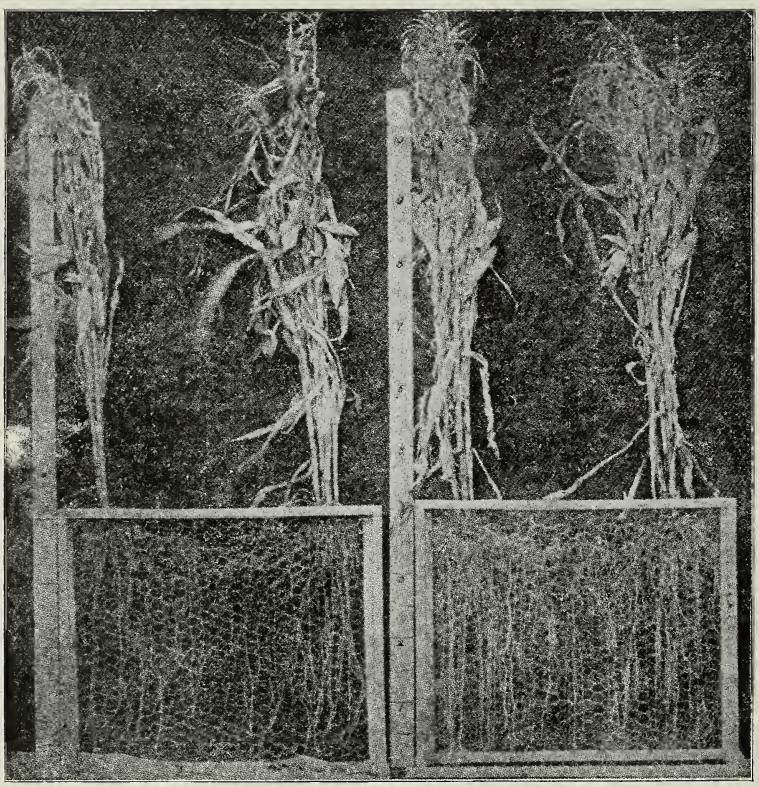


Fig. 5. Mature Corn, 106 Days After Planting.

The Improvement of Country Life

By Dean H. C. Price

The decrease in rural population as shown by the census of 1910 is viewed with alarm. Iowa, the most productive agricultural state in the Union, shows a decrease of over 5 per cent. in the last decade for the entire state, notwithstanding the growth of her cities. The exodus of the young people from the country to the city has been decried for a half century or more and yet it goes steadily on. In some sections so active has this process been that only the inert, the residuum of each generation has remained on the farms, and as a result of this in two or three generations a marked degeneracy has been shown.

The last half century has witnessed most wonderful achievement of science and invention for increasing the production of our farms. "To make two blades of grass grow instead of one" has been the ideal of the Agricultural College, the Experiment Stations, the Agricultural Press and all other factors concerned in improving agriculture. Our one thought has been to increase production and maintain fertility as if full barns and fertile fields were the end to be sought rather than the means to an end. The results that have been attained are to be seen in our increased yields, our improved crops and our better live stock, but with this increase of our production there has not been a corresponding development of country life.

The graduate of the Agricultural College who returns to his home is not discouraged from the financial returns that he is able to derive from the farm, but rather from the conditions under which he finds it necessary to live. I know from personal experience the lack of congenial associates, of recreation and of social life felt by the graduate the first year out of College. Four or five years' absence from the community for the greater part of each year has put him out of touch with his old friends. College training has given him new points of view and wider visions, and he finds himself dissatisfied with existing conditions. If his training has been what it ought to be he has not lost his sympathy and interest in his neighbors, but they are apt to have lost their sympathy with him, regarding him as theoretical, impracticable and visionary, and the "show me" attitude they take will only be changed by results.

The improvement of country life is dependent upon the improvement of our agriculture, and only through increased income of our farms can the "sinews of war" be furnished to install conveniences and comforts in the home, to give time for recreation, for travel and for reading and study. But the man who works ten or twelve hours a day regularly on his farm, who takes no time to read anything but his farm papers, is not likely to care for anything except his own farm. He will have few topics of conversation except his crops, his live stock and his neighbors. The country is the ideal place to live and there is a strong movement among the residents of the city to get into the open country, but as a rule they retain their social connection in the city, their circle of friends, and are exotic residents so far as the real life of the community is concerned. The men and women who should make coun-

try life are the people who live in the country the entire year, whose real interests are in the community because it is where their children are to be raised and educated and probably continue to live.

The home is the unit of our life, and improvement in either city or country life naturally begins with the home. The first step in the improvement of country life is to improve the country home. To install modern systems of lighting, heating and plumbing. All of the conveniences of the city can readily be supplied in the country and at a cost that is not prohibitive. Then will follow the improvements of the home grounds by the planting of trees and shrubs and flowers, the building of walks and drives and improving the place so that it will not only be a source of pleasure and pride to those who own it, but will be admired by all who see it.

The farmer who has the interest in his home to make all of these improvements will not confine his interest to his farm, but will take a wider view and see the opportunity for improving his community. What these improvements shall be will depend upon the locality; it may be building good roads, the improvement of the country school, the country church, the establishment of a neighborhood library or magazine club, the establishment of a local grange or the improving of the one that already exists or possibly the establishment of a farmers' institute or an agricultural extension school.

The barrenness of country life is responsible very largely for young people leaving the country to go to the city. In every community are the latest possibilities for making a country life that is just as attractive as any city life and far more elevating in its influence. The isolation of rural life has disappeared through the advent of the telephone, the rural mail, the trolley car and the automobile, and country life must be adjusted to these changes. The young people of the country must go to the city and should do so, they need to become acquainted with city life, but that does not mean the giving up of their own community life, but rather that they shall take back to their home community what is good and leave behind what is of no avail. The modern progressive boy and girl of the country do not care to be known for their provincialisms and to have that apologetic explanation made that "they are from the country." Even though they are from the country, they should know how and what to do as well as their friends from the city.

The great need of country life is local leadership, men and women with the training, the vision and the ability to guide the development of the life of their community. The church, the Sabbath school, the public school, the community life lack leaders. It is here that the graduate of the Agricultural College has the opportunity to mold the character of the country life of his community. Not only should he be ambitious to be the best farmer in his community, but to live the best and to do the most for his neighborhood. The improvement of country life must be preceded by improvement in farming, but this having already been accomplished to a considerable degree, the next step in our Agricultural education must be to teach how to live.

More Corn Per Acre

By W. H. Darst, Agricultural Extension

When judging seed corn, maximum yields will depend to a large extent, on adaptibility, and seed condition. Good seed condition is probably the most essential factor in producing a large yield. See that will not grow is of little value. Seed corn to show improvement must be uniform in size and shape of ear, uniform in number of rows, indentation, grain, etc., and yet if the seed condition is poor it will be little, if any, better than an ordinary strain.

If we wish large yields we must have a good stand of plants in the field. Under average conditions poor seed is to blame for a large share of a poor stand in the field.

In order to obtain good seed it will be necessary to properly gather and store the seed ears, selecting only those ears that are thoroughly mature. The seed ears must be properly dried out and stored before freezing weather. Store the ears in a dry, ventilated room or building so as to allow free circulation of air around each ear.

Even though the seed ears may be handled with extreme care in storage, it is always probable that a few ears out of every hundred or so are poor in seed condition. It is true they may sprout under favorable conditions, but will they grow under field conditions? This is the vital point to be settled.

Corn Germinator.

Many farmers are underestimating the value of the germinator as a final test for seed condition. In many cases these men are running the test under the stove, back of the stove, or in the living room. They are not testing their seed under field conditions.

A good test should be conducted under conditions as they exist in the field.

Not until this precaution is observed will the test be of any material value.

A germinator should be so constructed that every grain and sprout can be easily inspected, as to whether it will grow, or as to the vitality and strength of the sprout.

The cut will give the reader an idea of a germinator that has many points in its favor. This box can be easily made out of cheap material. The dimensions may be made so as to be the most convenient to the operator, a convenient size being 4x20x30 inches, inside measure.

The sides and ends are marked every two inches and notched in with a saw to a depth of one inch. This will permit of making the box into two-inch squares by stringing a cord back and forward through the notches.

Damp sand or sawdust may be used for sprouting the kernels. Fill the box within one inch of the top with damp sawdust, making this layer compact and smooth. Then mark the surface off in squares by stringing up the cord as before mentioned.

After numbering the squares along the side and end the box is ready for the corn to be tested.

Take six grains from each ear for the test. These should represent every possible location on the ear. The kernels should be put into a square, germ side up. The number of the square is then recorded on a piece of paper and pinned on the shank of the ear. When the box is completely full a tight cotton cloth is then covered over the kernels. An inch of damp sawdust is then covered over the cloth, making the contents level with the upper edge of the box.

In order to have field conditions for making the test, it should be conducted about two weeks before corn planting. The tester should be taken out in the field or the garden, and sunk into the soil, so as to be level with the surface of the ground. The germinator is then covered with a light covering of soil.

The test can be made from eight to ten days after starting. When the test is made all ears failing to germinate perfect should be discarded. Some attention should be payed to the vitality of the sprout.

In this methed we have the seed subjected to the same conditions that exist in the field and is, in my estimation, the only way of making a true test for SEED THAT WILL GROW.

It will be well to mention that too much attention may be given to the time of sprouting and the strength or size of the sprout. Bulletin 212, of the Ohio Experiment Station, mentions the fact that they found no difference in yields by planting ears slow in germination, against ears that were quick to germinate.

However, the kernels that sprout quickly will be less likely to do so under unfavorable conditions in the field.

Corn Breeding in Ohio

By W. F. Bruce

Corn improvement is a subject which appeals strongly to the people of Ohio. With a crop this year of 143,853,000 bushels, having a farm value of $71,-926,500, it is no wonder that we stop to listen when experienced men tell us how to increase the corn crop. The breeding of corn is just one of the ways of corn improvement. But it is the most interesting method and one of the most profitable. During very recent years, methods of corn breeding have been developed in Ohio which make possible a great increase in the productiveness of corn.

There has long been a demand for better methods of corn breeding. As early as 1882, in the first year of its establishment, the Ohio Experiment Station receiced a letter about corn improvement from Mr. L. N. Bonham, Oxford, Ohio. Let me quote just two sentences from that letter: "Now the point is, to know how to prevent the dissemination of bad blood in the corn crop where pollen flies. I believe that if we can devise some way by which we can control impregnation in the corn field as thoroughly as we can in the herds of cattle, sheep and swine, then we shall be in the way of producing more uniformly good crops with our present good cultivation." So much for the demand; now, let us see how far this demand has been answered in Ohio.

Mr. C. G. Williams, Agronomist of the Ohio Experiment Station, has developed a method of corn breeding which we believe excels any other single method yet developed. The Ohio ear-row method of corn breeding is not the result of a single year's work, but contains the wisdom of years of experience and trial. It has undergone a development.

Less than ten years ago, Dr. C. G. Hopkins, of Illinois, began using a corn ear-row test. In 1903, Prof. Hunt, at Ohio State University, added the use of check rows to Hopkins' method. To make the test still more accurate, Mr. Williams began using about 1905 a check row system. He also added the distinguishing and most important feature—the saving of the remnants of the ears tested in the ear-row test from year to year. We will try and give a brief description of the Ohio ear-row corn breeding system as carried on by Mr. Williams.

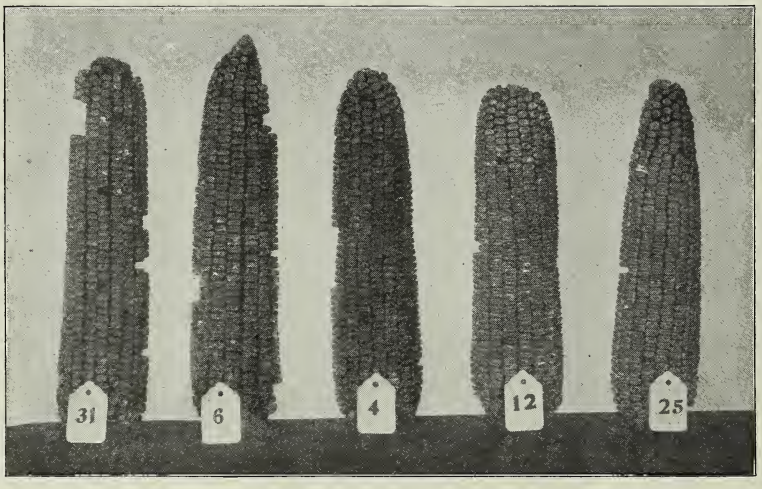
First, select twenty-five ears of corn and number them. Record a detailed description of each ear and the mother plants. Select a uniform soil, which is representative of the farm, for the test. Mark off the rows, every sixth row being a check, thus: Check I—1, 2, 3, 4, 5; Check II—6, 7, 8, 9, 10; Check III—11, 12 and so on to 25. Make the rows fifty hills long. Plant corn from ear No. 1 in row No. 1, and so on. For planting the check rows select five other ears and letter A, B, C, D and E. Plant the first ten hills of each check row with kernels from ear A, the second ten hills with ear B, and so on, the last ten hills of each check row being planted from ear E. This makes the check rows very uniform in heredity and therefore a good measure of the comparative fertility of the soil at different parts of the plot. Plant the hills liberally and when the corn is several inches high thin to three stalks to the hill to get as uniform stand as possible. To make the

test more accurate make an exact duplicate of it, using the same twenty-five ears, either right beside the first plot or elsewhere on the farm.

There will be part of each of these twenty-five ears left after planting. It is very important that these remnants should be carefully saved until the next year, for some of them will be the foundation stock of your pedigreed corn. So put them away out of the reach of mice and mold, weevil and weather.

ods used in computing the relative value of the different ears, and the Station Staff are very glad to help a corn breeder in preparing for his test and in interpreting the results of it.

The four best yielding ears are selected and the remnants of these ears are planted the next year in an isolated plot where no foreign pollen will reach them. Suppose the four ears selected were No. 4, 10, 17, 24. If No. 10 is the best ear it would be used for pollinat-



Highest Yielding Ears, Ear-to-Row Test Plot, O. S. U., 1910.

While the corn is growing, any notes taken on the rows will help in deciding which ears are the best yielders. When the corn is ripe, harvest each row separately. Carefully weigh and record the weights. Divide the corn into marketable and unmarketable ears, and also reweigh after the corn has dried out, as the highest yielders may have much corn in them which is damp and therefore heavy and unmarketable.

After all the results are recorded, the best producers must be determined by means of the duplciates, the checks and the notes. The publications of the Ohio Experiment Station describe the meth-

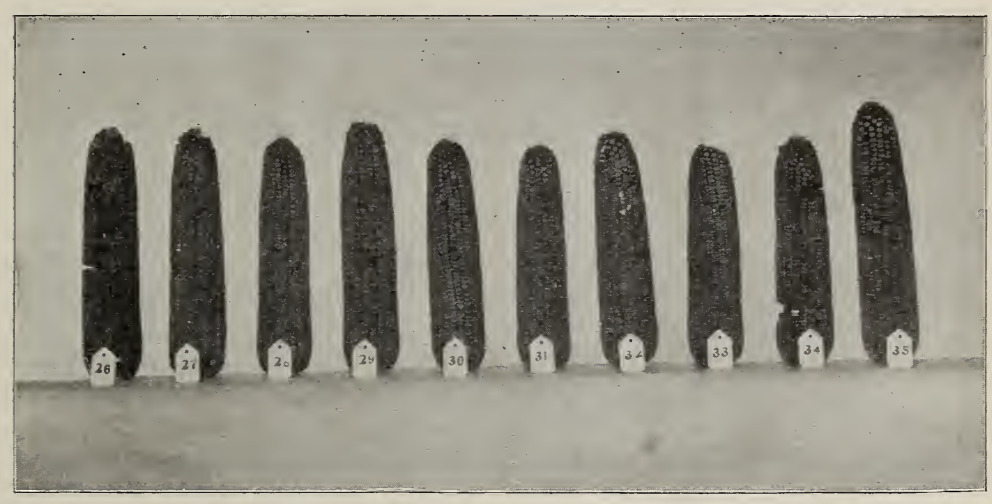
ing the others and the remnants would be planted in short rows, alternately, as: 10, 4, 17, 24, 10, 4, 17, 24, etc. Detassel all the rows except of No. 10. The pollen from No. 10 will fertilize 4, 17 and 14, giving a direct cross. No corn is selected from No. 10 rows because this is self-fertilized. The corn selected from the other rows makes three distinct strains, due to the direct cross of ear No. 10 on each of the other three. Each of these pedigreed strains can be put into an isolated multiplying plot the next year and the corn from this further tested or used for general field planting.

This is but a meager outline of the Ohio ear-row corn breeding method, but it may serve to show that Mr. Williams has devised "some way by which we can control impregnation in the corn field as thoroughly as we can in the herds of cattle."

The essentials of the Ohio method are, then: (1) No ear without performance record used in breeding; (2) duplicate and check rows of the ear-test; (3) cross-breeding of ears in breeding plot; (4) isolated breeding and multiplying plots; (5) new stock can be introduced through the ear-row test. Mr. Williams puts it thus: "The ear-row test is the basis on which we build; then, the isolation and crossing the best individuals and the testing of the resulting pedigreed strains beside the original stock in further ear-row work, as well as in the larger plot work."

As to the results of this work, Mr. Williams says: "We are finding, as in animal breeding, that there is wide variation in these pedigreed strains. Some of our latest developments are showing surprising merit; others of them that are apparently as well, but differently bred, are very ordinary. The great point is, I think, to prove all things and perpetuate that which is best."

This method of corn breeding offers to the corn growers of Ohio great opportunities for increased production. The methods are worked out. The results are being shown. The opportunity is offered. Shall we accept it? Shall we take the time and labor necessary for greater returns? It would hardly be advisable for every corn grower to have an ear-row test, but surely there are several men in each county of Ohio who have the skill and perseverance to take up this corn breeding work and make it a success. A corn breeder in each county, of whom the farmers could buy seed best adapted to their conditions, would go far toward making our average corn yield what it might be. You men who are interested in the corn crop, will you do this for your county?



Ears Representing First Ten Rows of Plot II, Ear-to-Row Test Plot, O. S. U., 1910. Average Yield, 84.8 Bushels.

Agricultural College Tour

An Agricultural College tour is being planned for the coming summer for those who are interested in gaining a first hand knowledge of farming methods in Europe. One who has not experienced something of European travel cannot appreciate the pleasure and the knowledge to be obtained from such a trip.

It is planned for a leisurely route through England, France, Switzerland, Germany and Holland, occupying about ten weeks at a season of the year most convenient for those persons who are interested.

The purpose of this trip is to acquaint Americans with the methods of agriculture and the conditions of country life in Europe; this differs greatly from ours and in many cases is not as far advanced, but we still have much to learn from the Europeans. Their development of waste lands is something we would do well to consider; the roads of Europe all through the rural districts are as good or better thany any we can show in our cities, and the people who make and keep up such roads are to be praised. From these fine European highways our good-roads people may be able to gather some useful lessons. The forests of Germany are excellent opportunities for the study of conserving the natural resources. General farming, dairying, truck-gardening, greenhouses, soils, markets, and transportation may prove suggestive subjects for study. The delivering of goods, of which many unique methods may be seen, as the delivery of milk with dog carts in Belgium and Germany and the bringing of vegetables by canal boats from the farms to the markets in Holland, will be of interest. Agricultural schools and other institutions will also be studied in connection with this European tour.

The method of the trip is to make some important city, where good accommodations can be secured, the basis of operation and from this central point to make many excursions into the surrounding country. Some time will be given to matters of general interest in the larger cities, especially to places of historical interest in cities like London or Paris.

Ths tour is very different from the usual trps taken by American tourists, many of whom go and care nothing for the educational advantages and rush through without seeing anything of value, and do not even so much as glimpse at the Agricultural side. But this tour is planned for Horticulturists, factulties and students of Agricultural Colleges, stockmen, farmers generally, including a large and growing class of city folk who are interested in the "Back to the Country" movement, dairymen, good-roads enthusiasts and conservationists.

The management of this trip is under the Bureau of University Travel of Boston and the tour is carefully planed and arranged for by them. The cost will be about $600.00. Although we cannot all go, it is a fine movement and a great educational opportunity and should be of interest to every agricultural student.

Irrigation Demonstration

By L. W. Montgomery

In order to demonstrate the value of irrigation in vegetable garden work in humid climates, the Horticultural Department has under way plans for the installation of a series of irrigation tests in the University Gardens this season.

The area to be covered by this test will approximate one half acre and will be devoted to general garden crops.

The plans comprehend a division of the above area into four equal parts, one of which will be watered by an overhead sprinkling system, the second by the ditch system, the third by subirrigation, and the fourth will be used as a check comparison plot.

The Skinner Irrigation Company has signified its willingness to donate to the department all equipment in the way of nozzles, unions, hangers, etc., that may be required for the installation of the overhead sprinkling system. This will consist of two parallel lines of 1½-inch pipe about 200 feet long supported by gas pipe posts at a distance of 8 feet above the ground. These pipe lines will be 50 feet apart and will be fitted with special sprinkling nozzles placed four feet apart and on the same side of the pipe throughout the entire distance. These same pipes are fitted with unions connecting them at one end with the water supply in such a way as to permit their being turned entirely over, thus allowing for a wide and even distribution of water.

The water will be supplied to the second plot by means of open ditches passing along side the rows of the several crops in such a way as to prevent as far as possible the loss of water through seepage and evaporation.

The third plot will be underlaid with 2-inch drain tile in parallel rows about six feet apart and 18 inches deep, through which the water will be distributed and applied to the crops by soil capillarity.

The water used upon these plots will pass through a meter and accurate records will be kept of the amounts used in each instance.

The purpose of the demonstration will be to test the influence of the artificial application of water to- vege table crops with respect to productivity, quality, rapidity of development, susceptibility to diseases and insect pests, under the various systems of irrigation noted.

The comparative effieciency of the different systems will be determined upon the basis of the cost of installation, cost of water application, convenience of distribution, and general influence upon the crops grown.

National Corn Exposition Program January 30 - February 11

The program for the fourth annual National Corn Exposition, to be held in the group of eight buildings on the Ohio State Exposition grounds, January 30 to February 11, is as follows:

FIRST WEEK.

Monday, Jan. 30—Exposition opening day. Official opening exercises in evening at 8 o'clock in Exposition auditorium. Addresses by Governor Harmon, of Ohio; Mayor Marshall, of Columbus; President Pretzman and Secretary Bassell, of the Columbus Chamber of Commerce; President E. D. Funk and Secretary and General Manager Geo. H. Stevenson, of the National Corn Exposition.

Tuesday, Jan. 31.—National Live Stock Day. Attractive program in the interest of Live Stock Industry. Speakers of national and international reputation.

Wednesday, Feb. 1—American Breeders' Association Day. Program in charge of American Breeders' Association.

Thursday, Feb. 2 — National Dairy Day. Speakers: Governor Warner, of Michigan; Governor Harmon, of Ohio; G. W. Sisson, Pottsdam, N. Y.; Wilbur Marsh, Waterloo, Iowa; Prof. H. E. Eckles, Columbus, O. National Dairy banquet, Exposition auditorium, in the evening; Ohio State Dairymen's Association, host. Dairy dishes will be served. Governor Warner will deliver the principal address, his topic to be "The Old Fashioned Dairy." John D. Nichols, of Ohio, will be toastmaster. Plates for 1500 guests.

Friday, Feb. 3—National Corn Day. Speakers: P. G. Holden, Iowa; C. G. Williams, Ohio; G. I. Christie, Indiana; William Deitrick, Illinois; C. G. McCall, Ohio; W. J. Spillman, Department of Agriculture. National Corn banquet in evening, Exposition auditorium. Plates for 1500 guests. Corn dishes will be served. Ohio Corn Improvement Association, host. James Wilson, Secretary of Agriculture, address on "The Evolution of American Agriculture." Senator Burton, of Ohio; Senator Clapp, of Minnesota, and others will speak. Governor Harmon, of Ohio, will preside. Secretary Sandles, Ohio State Board of Agriculture, toastmaster.

Saturday, Feb. 4—Conservation Day. Speakers: Gifford Pinchot, ex-Forester for the Government, and W. C. Brown, President of the N. Y. Central R. R. Co. James R. Garfield, Chairman.

SECOND WEEK.

Monday, Feb. 6 — Address in afteroonn by Governor Pennewill, of Delaware. Subject: "The Farmer as a Statesman."

Tuesday, Feb. 7—Opening of National Rural Life Conference. Vital problems in agriculture will be discussed. Meetings and conferences will be of interest to everyone. Plan to attend and participate in discussions. Great mass meeting in forenoon. Dr. L. H. Bailey, Dean and Director of the New York Agricultural College of Cornell University, ex-Chairman of the Roosevelt Country Life Commission, Chairman. "Commercial Co-operation in the Rural Community" will be the topic. In the afternoon Dr. Bailey will deliver an address on the same subject.

Wednesday, Feb. 8—Address by A. E. Roberts, International Secretary of the County Work Department of the Y. M. C. A. Dr. Warren H. Wilson, Superintendent of the Church and

Country Life Board of Home Missions of the Presbyterian Church, will speak on "The Country Church and Community." Afternoon: Addresses by Willet M. Hays, Assistant Secretary of Agriculture; Prof. A. B. Graham, of Ohio State University; and Miss Mabel Carney, of Cheney, Wash., bearing on the problems of the rural school.

Thursday, Feb. 9—Kenyon L. Butterfield, President of Massachusetts Agricultural College, and an ex-member of the Roosevelt Country Life Commission, Chairman of mass meeting in the morning. "Social Co-operation in the Rural Community" will be discussed. Mr. Butterfield will deliver an address on the same subject in the afternoon.

Friday, Feb. 10—"Co-operation Between Producer and Consumer" will be the topic. Prominent economists and representatives from the co-operative organizations of all sections of the country will join in the discussion.

Saturday, Feb. 11—States Day. Program of interest to representatives of every state and every country. Exhibits will remain intact until midnight.

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COLUMBUS, O., FEB. 5, 1911.

Editorial

Corn, the greatest of all agricultural products, will be displayed in all its glory at the National Corn Exposition. In this we shall have the greatest exhibit of corn and other agricultural products that was ever displayed. From an educational point of view it will be of great value to everyone. To see what other people can do is always an inspiration to take steps forward and push a little farther toward the goal for which we are all striving—the ideal. In an exposition of this nature we come nearer to approaching these conditions than by any other possible means. In a gathering of this kind, where the best is collected from all corners of our nation, it affords a splendid opportunity for studying conditions and obtaining some conception of the productivity of our nation. It shows where the various crops are best adapted and the extent of development along various lines. Twenty-five State Agricultural Colleges and Experiment Stations will have exhibits at the Exposition, each one representing some feature or features of its most advanced experimental work. Each year calls for advancement in agricultural science; this will bring together the various improvements and ideas that have emerged in the agricultural world during the past year. The greatest men of the nation will be here to discuss questions of economic importance and to encourage and improve advanced agricultural methods. The exhibits, together with the numerous other educational features, will make the Exposition a grand place to study the advanced agricultural education of our country.

"Study" like "education" is clothed with a new meaning in the industrial schools of today. Formerly it applied to work with books alone. Now it is quite as appropriately applied to the observation and comparison of processes and results, mechanical as well as natural.

It is the opinion of the state board of agriculture that agriculture should be taught in the public schools. At a recent meeting a resolution was adopted for working out this plan.

NEWS NOTES

PROF. PLUMB PUBLISHES.

Every student of animal husbandry, every advocate of better flocks and superior methods, assuredly every student of the Ohio Agricultural College, is vitally interested in the new publication which has just come off the press. It is entitled "A partial Index to Animal Husbandry Literature." Prof. Charles S. Plumb is the author. The work fills a long felt want and represents an infinite amount of painstaking labor. Besides the bibliography proper, it contains a valuable and helpful treatise on some Special Suggestions for Library Work.

There exists today a great volume of animal husbandry literature, touching on most every phase of the subject. The trouble lies in finding what we want. Previous to the appearance of this work, about the only method available was to "browse around" until we ran across the desired bulletin or pamphlet, or publication. By consulting this index we are instantly put in touch with what we desire and given a hint as to what we may expect to find there. The titles are given in considerable detail, thus indicating the nature of the contents. The occasional concise comments by the author as to the value and standing of certain books, bulletins, or articles are of material assistance in the selection of present day literature on the subject.

The great volume of experiment station and government publications are listed with author, number, title, and place of distribution, thus enabling one to choose rationally and wisely, and to build up a priceless library at very little expense.

Every progresive student of agriculture will at once avail himself of this treatise, and no more spend many weary hours in search of what he wants but cannot exactly locate.

OHIO LIVE STOCK ASSOCIATION.

On January 30th and January 31st, ocurred the Seventh Annual Meeting of the Ohio Live Stock Association in affiliation with the National Corn Exposition. Hon. O. E. Bradfute, Xenia, O., the famous Angus Breeder and a Trustee of the university, gave the opening address. Prof. A. B. Graham talked on "What Agricultural Extension Work is doing for the Stockman," Prof. H. W. Vaughn on "The Draft Horse in Ohio, Past and Present;" Prof. W. H. Palmer on "The Influence of Foods on Pork Production; and Prof. David S. White on "The Horse's Foot and its Shoe." This matchless array of talent was completed by Mr. B. E. Carmichael of the Ohio Experiment Station on "Feeding Experiments with Sheep," Prof. H. W. Mumford, of Illinois University on "Agricultural Observations in Argentine Republic;" Mr. S. M. Cleaver of Delaware, Ohio, on "The Merins and its Influence in Ohio;" and Director Chas. E. Thorne of the Ohio Station on "The Relationship of Farm Animals to Soil Fertility."

President Butterfield, of the Mass. Agricultural College, will give an address on "Rural Leadership" before the Agricultural Society at the next regular meeting on February 8th.

SHORT COURSE LECTURES.

Mr. Willis O. Wing of Mechanicsburg, O., most ably occupied the Short Course rostrum for four evenings of the last week in January. He held forth on "Alfalfa Culture," "Corn Growing," "Lamb Feeding," and "Farm Management," respectively. Mr. Wing is a specialist and a practical man. His addresses were deeply appreciated and largely attended.

On Friday, January 27, Mr. Wheeler of the International Harvester Co,. gave his famous illustrated lecture on "The Romance of the Reaper" and held everyone spelbound for over an hour and a half. It was truly a great treat and deserved more patronage.

On the week of January 30th to February 4th we will hear some of the best lectures of the course, at 4 o'clock each afternoon in Townshend Hall. The speakers are, Hon. R. W. Dunlap, State Dairy and Food Commissioner, Dean Sanderson of the West Virginia Agricultural College, and Mr. Bayard of the "National Stockman and Farmer."

On January 24th before the Swine Breeder's Institute which convened at Dayton, Ohio, Professor Plumb gave a talk on "What the Experiment Statiions have done for Swine Breeding." At this meeting a committee was appointed to co-operate with the university in securing agricultural appropriations, with especial reference to those so badly needed by the Department of Animal Husbandry. if it is to continue its work so well started.

On February 3rd, "The National Corn Day," Professor A. G. McCall will discuss the "Corn Shrinkage Test," which has been conducted by the Agronomy Department.

BEST ACRE OF CORN.

Mr. B. Bucks, of Harlan Springs, Carroll County, won first prize, again this year for the best acre of corn offered by the board of agriculture. Bucks' prize winning acre produced 134 bushels and 5 pounds. This was a good increase over his prize acre last year which produced only 122 bushels and 54 pounds.

The seventh annual meeting of the American Breeders Association will be held February 1, 2 and 3 at the National Corn Exposition. Meeting places: Wednesday, Exposition Auditorium, devoted to committee reports and addresses; Thursday and Friday at government buildings on the Exposition grounds; Thursday will be devoted to eugenics and plant breeding, Friday will be devoted mainly to animal breeding.

At the monthly meeting of the University Horticultural Society, Mr. W. H. Coles discussed the Skiuner Irrigation System. Mr. Coles is connected with the manufacturers of this system and has had extensive experience with the irrigation work. The system is not only used for irrigation, but has been successfully used in frost protection and spraying.

W. F. Bruce '11, judged the corn at a large county show which was held at Fort Jennings a short time ago.

A. R. Moist, '08, has recently accepted a position as manager of the Sheffield Farms at Glendale, Ohio.

Richard Faxon, '10, is at present managing the Waddington Farms, near Wheeling, W. Va.

THE BERKSHIRE SALE.

The catalogue for the fifth annual sale of the American Berkshire Congress is off the press. The sale will be held in the judging pavillion on the afternoon of February 8th, and will terminate the fifth annual meeting of the American Berkshire Congress, program of which appears in the last isue of "The Student." Fifty-six superior sows are offered from the best breeders of the United States. Ohio State University offers two good ones, namely, the sow Masterpiece Premier Duchess 2nd, bred by U. S. Corsa, by Masterpiece and out of a Premier Longfellow boar wonderfully well bred; and the gilt, Ohio Princess B 6th, bred by the University, sired by Rival Baron Lee 3rd, and out of a Longfellow Premier C. sow. Other good ones are consigned by such noted breeders as U. S. Corsa, Sheffield Farm, O. C. Barber, J. W. Russwurn, W. H. Palmer, Hartman and Plumb, Hupp Farm, etc. C. E. Sutton, of Lawrence, Kansas, is the largest consignor, having fourteen head in the sale. Prof. W. H. Palmer is secretary of the American Berkshire Congress.

Professor Clinton J. Grant of Storr's Experiment Station, has recently taken charge of the Crops work in the Agronomy Department. Professor Grant graduated at Cornell University in '08. Since graduation he has held an important government position located at Storrs, Connecticut.

The Ohio Duroc Jersey Swine Breeder's Association will hold its annual meeting in the Chamber of Commerce on January 31, 1911. The program is an excellent one, one of the chief features of which is Prof. Marshall's talk on "Swine Breeding."

RESULTS OF CORN TESTING.

Had the farmers of Nebraska, in the spring of 1910, planted their fields with untested corn from the crop of the year before, as they had been acustomed to do, it is figured that there would have been a shortage of 25,000,000 bushels in the crop of that state for this year. But fortunately the Commercial Club of Omaha discovered the poor germinating quality of the 1909 crop. Tests showed that only 57 ears out of 100 would furnish seed which would be certainly safe to plant. The alarm spread, and vigorus measures were taken to secure the planting of only tested seed, in every part of the state. As a result, instead of a threatened deficiency of 25,000,000 bushels, the Nebraska crop is estimated at 10,000,000 more than that of the year before. With such a showing, what farmer will venture, hereafter, to plant untested seed,

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The federal department of agriculture will exhibit its special corn display which has just been returned from the Buenos Ayres international Exposition. The exhibit fills two large cars and is one of the largest and most attractive single exhibits to be shown. Following the National Corn Exposition, this exhibit will be returned to Washington, after which it will be sent to Turin, Italy, to an international Exposition.

On January 21st, at Chicago, Prof. Plumb attended a joint meeting of representatives of the Percheron Society of America and of the Percheron Registry Co. Two committees of five each met to arrange, if possible, for the consolidation of these two associations. The prospects for this affiliation are very favorable.

The University has just closed negotiations for a remarkable Holstein-Friesian bull calf. He comes from the famous Moyerdale Herd of H. A. Moyer, Syracuse, N. Y. The calf was born April 24, 1910, is beautifully marked, three-fourths white, breedy looking, a real show calf, and exceedingly choicely bred. His sire, King Walker, was the first bull of the breed with a dam and grandam to have records better than 30 pounds, and he is the sire of two official registry daughters, his first to become fresh. He is out of the Countess Segis, the greatest record daughter of the wonderful King Sergis, Countess Segis has a three-year-old record of 29.79 pounds of butter, with an average per cent. of fat of 5.68. Surely none could ask for better breeding, and we are fortunate in securing such a representative of the breed. It is also a significant fact that his dam has the second highest record of any Holstein-Friesian cow of her age, and topped the Syracuse auction in 1910, where she sold for $1550.

At the recent Ohio State Poultry Show which was held in the Beggs annex, January 17-21, the beautiful Ohio State University Trophy was again won by Hartman Farms on their Buff Wyandotte display. It will be remembered that this cup was donated by the students of one of the very few agricultural colleges which cannot boast of a poultry plant of any sort, and competition for its possession is of the keenest nature.

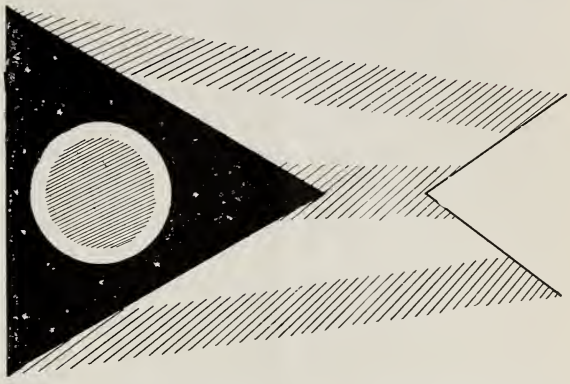
One of our imported Percheron fillies has recently been sold to parties in Virginia.

The new Clydesdale mare which has been purchased of the Graham-Renfew Co., of Toronto, Canada, will be a most valuable acquisition to the university stud. Her name is Moncrieff Duchess, she is six years old and was imported from Scotland last summer. Her sire is the famous wheeler, Marquis, of Morris and Co's. champion six-horse team. Moncrieff Duchess is a very fine individual and a well known show mare. She was first at the Ottawa Horse Show and second at Madison Square Garden. Last but not least she is safe in foal to Gay Spring, the champion of the breed at Madison Square Garden in 1910 and a better one than the International champion. Prof. Marshall is to be congratulated in her purchase.

Prof. Plumb has received a most flattering invitation to exhibit the Ohio State University Wool Exhibit at the Montana State Fair next September. This invitation comes thru the Secretary of the Montana Woolgrowers Association, who offers to pay all expenses of shipment, etc., together with ample remuneration for a person to accompany and display the exhibit. At the 1910 International this wool exhibit caused a flood of favorable comment, and it was here that the cupidity of the westerners was aroused and now they desire to make this a leading feature at the next Montana State Fair.

Professor F. R. Marshall delivered an address before the Virginia Live Stock Breeder's Association at Charleston. The address dealt with some modern phases of "Live Stock Breeding."

STATE NEWS



The official flag of Ohio, adopted May 9th, 1902. The stripes are red and white. Seventeen stars are on a blue field, surrounding a white "O" with a red center.

Tuscarawas Co.—The abandonment of the Ohio Canal is again a live topic here, as it has been for many years past. The farmers of this and Coshocton Counties have long been among the foremost in the fight for abandonment. Here, where the farmers come into actual touch with the canal in its most depleted condition, they are hard to convince that there are any economic or hygienic reasons for maintaining what to them seems the greatest nuisance. An electric line along the canal site would be a welcome and profitable substitution.

The position taken by Congressman Ashbrook's newspaper on the parcels post system is causing considerable unfavorable comment among his constituents here. If this popular representative does not abandon his attacks on this system he bids fair to lose some of his present popularity.

The last ceusus shows, that while the population of Tuscarawas County has increased from 57,000 to 60,000, the rural population has decreased from 31,000 to 28,000. This looks very encouraging to those farmers remaining on the land and is another instance in proof of the fact that farm products are going to be permanently higher in price.

The Agricultural Extension School held here in December was well attended.

The Summit County Farmers' Institute was held Jan. 18 and 19. It was the 29th annual institute and was by far the most successful.

The census report shows a very creditable increase for Cuyahoga Falls. The gain in population for the last ten years was 26.3 per cent.

The Farmers' Institute met at Decatur, Ohio, Jan. 6 and 7, 1911. Messrs. Wagoner, Hammon and Kane were the speakers. There was a good audience on both days, and an unusual interest seemed to be taken. A new feature about the institute was a corn show worked up by the committee, in which farmers brought samples of their best corn to exhibit. There were in all about two dozen samples of the different varieties. The speakers were appointed as a committee to place the premiums, after which, at the request of an exhib-

itor,, they gave a summary of some of the points which led them to their decision. This was a good feature of the institute and, although it was no elaborate affair, it was something of common interest to the farmers.

Canada Thistles are becoming very injurious in Northern Ohio, especially in the grain and hay crops, where cultivation is not relied upon to hold them in check. They secure a foothold in fence corners and other uncultivated spots, from which they gradually intrude into the open fields. The amount of fertility which the thistle removes from the soil, if allowed to mature, is amazing. The only safe remedy, it appears, is to prevent their growth by continuous cultivation, or to pasture such ground closely with sheep. It is to be hoped that farmers throughout this section will more generally realize the seriousness of the situation and unite to destroy them. The oyster shell scale is very rapidly depleting our section of willow and poplar trees, which seem to be especially susceptible to its attack. As yet fruit trees have not been seriously damaged by it. The scurfy scale has been very much more destructive in our orchards, but yields readily to the lime-sulphur spray. San Jose scale, I am glad to state, is as yet very rare.

This is the time of the year when the auctioneers come in for their harvest. There are more public sales in January this year than ever before. Many of them are very large, and the proceeds will total well into the thousands.

The Agricultural Extension School was held in Jefferson, Dec. 19-24. About eighty men attended. There were fifteen ladies in the Domestic Science class. The lectures were full of interest and everyone reported it a profitable week.

A Great Northern Railroad car, which contained wonderful specimens of agricultural products grown in the States of Montana and Washington, stopped at Mansfield, Ohio, Saturday, Jan. 21. It attracted many visitors interested in agricultural products. In addition to the exhibition at the car a free lecture was given in the evening.

The Fairfield County Corn Improvement Association will have a special car to take members to the National Corn Show at Columbus on Friday, February 3.

There seems to be considerable movement in real estate this winter, particularly in farms, and the prices paid are in advance of anything heretofore for the same kind of property.

Just now considerable attention is being centered upon the Agricultural Extension School to be held in Medina, Jan. 30 to Feb. 3. These schools are meeting a long-felt want and are greatly appreciated in Medina Co.

Wadsworth has within the past week received from the Director of Census her official announcement of her population, which is 3,073, an increase of 75 per cent. in just ten years. She is now larger by 339 than Medina, the next largest town of the county.

The farmers of this community held an independent institute at Wilmington, Jan. 18 and 19, which was well attended. The speakers were: Hon. A. H. Judy, State Institute Instructor, Granville, O.; Prof. A. G. McCall, Agronomist, O. S. U., Columbus, O.; Hon. A. P. Sandles, State Secretary, was billed to speak, but failed to arrive. Many very good subjects were discussed. Mr. Howard McCune was chosen President for the ensuing year, with Mr. J. E. Orebaugh as Secretary-Treasurer. Much splendid music was furnished. In connection was held our Fourth Annual

Corn Show by the Corn Improvement Association, of which Mr. J. E. Orebaugh is President. Some very excellent corn was on exhibition and much interest shown. Premiums ranging from 50c to $5.00 were offered. Mr. A. J. Wilson presented to the school making the best exhibit a beautiful loving cup. This cup is to be awarded annually. Clinton County ranks high in corn production and much is due our Improvement Association.

On January 19th the Horticultural Special passed through Belmont County enroute from Wheeling to Zanesville, and ended its journey at Marietta on Jan. 21. It was composed of three lecture cars and accompanied by officials of the B. & O., and make short stops of one to one and one-half hours at the most important towns on its course. At Barnesville 275 listened to the useful hints on pruning, spraying, sorting, packing of apples and brief history of some insects. Also a portion of the hour was devoted to poultry raising. Although the time was short, the instructors were prompt on beginning and closing, so made the best of it and made their discussions brief. At the close of the hour bulletins of the O. S. U. were distributed to the crowd, among them a spray calendar which was very instructive. Our county corn show was held recently and considerable interest was taken in the various varieties. The corn was judged by Mr. Lloyd, of the Ohio Experiment Station, and good satisfaction given.

A Farmers' Institute was held in Erie Co. on the 20th and 21st of this month. The state speakers were Thomas and Hummon. Mr. Thomas gave a very clear and interesting address on "Corn."

AGRICULTURAL EXTENSION TRAIN.

The week of January 16 to 20 witnessed a successful event in eastern Ohio. An Agricultural train was run on the O. R. & W. from Zanesville to Bellaire on the first three days making numerous stops along the line. On Thursday morning the work was transfered to the B. & O. at Bellaire and the trip was continued to Zanesville and from thence down the Muskingham River to Marietta, closing there on Friday evening. Horticulture and Poultry were the subjects discussed.

During the first three days 2,500 people listened to the lectures and along the B. & O. about 4,000 people were reached, making a total of 6,500. This total is about twice the number reached on a similar trip last winter.

Many gratifying things were said at nearly every station concerning the results from last winter's trip.

High officials of the road accompanied the train and were well pleased with the interest taken in this line of work along their respective roads. In each case nothing was left undone to make the trip comfortable for the instructors.

Ohio State Alumni were quite prominent in the recent Ohio State Horticultural Society meeting. Among these were: Prof. A. D. Selby, '93, from the Experiment Station, Wooster; Mr. W. R. Boettie, '99, of the U. S. Dept. of Agriculture; Mr. E. J. Riggs, '95; Mr. C. W. Waid, '98, of New Carlisle; Prof. V. H. Davis, '00; Mrs. C. W. Foulk, '01; Mr. S. D. Twitchell, '03, of Mansfield; Mr. N. E. Shaw, '06, Chief State Uursery and Orchard Inspector and others. All but Prof. Selby are graduates of the College of Agriculture.

TRACTION CULTIVATOR.

A new type of a machine for farming purposes has recently been placed on the market. It is the McKinney Traction Cultivator, manufactured at Gainesville, Ga. This is a two row cultivator especially adapted to growing cultivated crops. It is the first machine that will acomplish all farming operations from breaking the land to laying by the crop. Two types of machines will be placed upon the market, one for light work such as planting and cultivating and the other for breaking, planting, hauling and general power purposes.

The Forestry Department is exhibiting quite a collection of finished woods and veneers at the Corn Show . Some fifty specimens are in evidence.

The class in vegetable gardening is getting free copies of the Market Growers' Journal, published in Louisville, Ky., through the liberality of the editors of the paper.

The Horticultural Department has ordered a new Hardy power spraying outfit to replace the one destroyed by the recent fire. Samples of the various types of spray pumps have recently been added to the Horticultural equipment, which, together with the various types of orchard heaters, the latest types of receptacles used in picking fruit, etc., add materially to the efficiency of the Department.

Various members of the class in Seeds and Market Grains have been judging the corn at several local shows held in this locality.

EXTENSION SCHOOLS.

Jan. 30-Feb. 3—Hamilton Co., Harrison; Miami Co., West Milton; Fulton Co., Wauseon; Medina Co., Medina.

Feb. 6-10—Butler Co., Hamilton; Mercer Co., Celina; Williams Co., Bryan; Cuyahoga Co., Berea.

Feb. 13-17—Auglaize Co., Wapakoneta; Defiance Co., Hicksville; Lorain Co., Elyria; Montgomery Co., Germantown.

Feb. 20-24—Preble Co., Eaton; Shelby Co., Sidney; Paulding Co., Paulding; Ashland Co., Ashland.

Feb. 27-Mar 3.—Green Co., Xenia; Logan Co., Bellefontaine; Van Wert Co., Van Wert; Columbiana Co., Salem.

Mar. 6-10—Fayette Co., Washington C. H.; Union Co., Richwood; Putnam Co., Leipsic; Franklin Co., Canal Winchester.

Mar. 13-17—Adams Co., Cherry Forks; Champaign Co., Mechanicsburg; Huron Co., Chicago.

Mr. E. B. Blakeslee, '09, visited Columbus during the Horticultural meetings and Apple Show.

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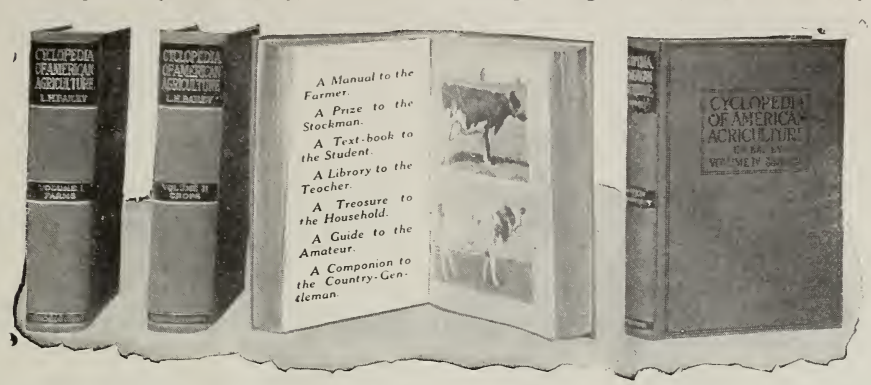

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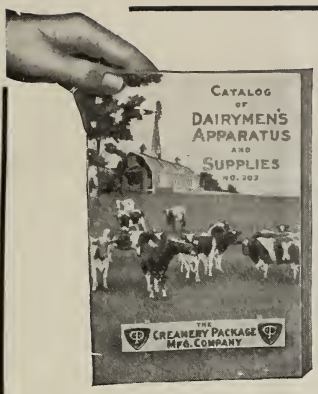

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